Trend Study 17-39-02

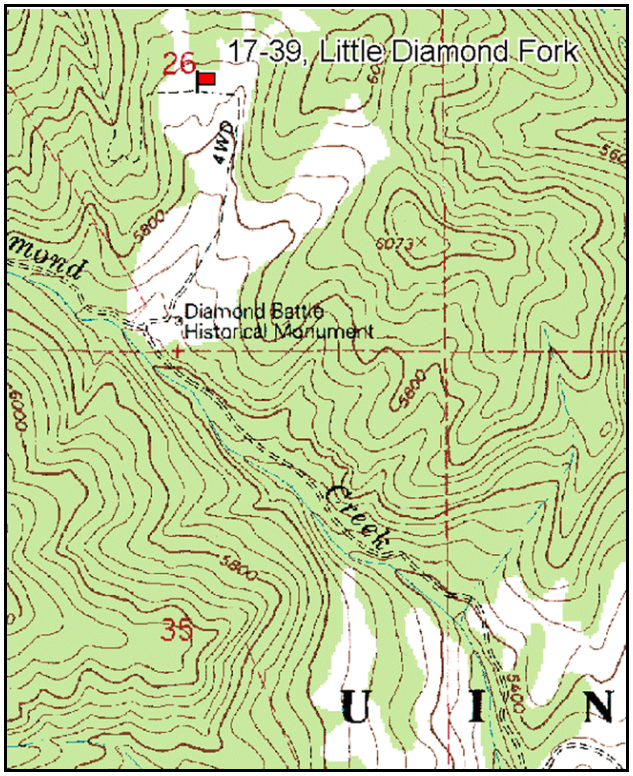
Study site name: Little Diamond Fork . Vegetation type: Big Sagebrush-Grass .

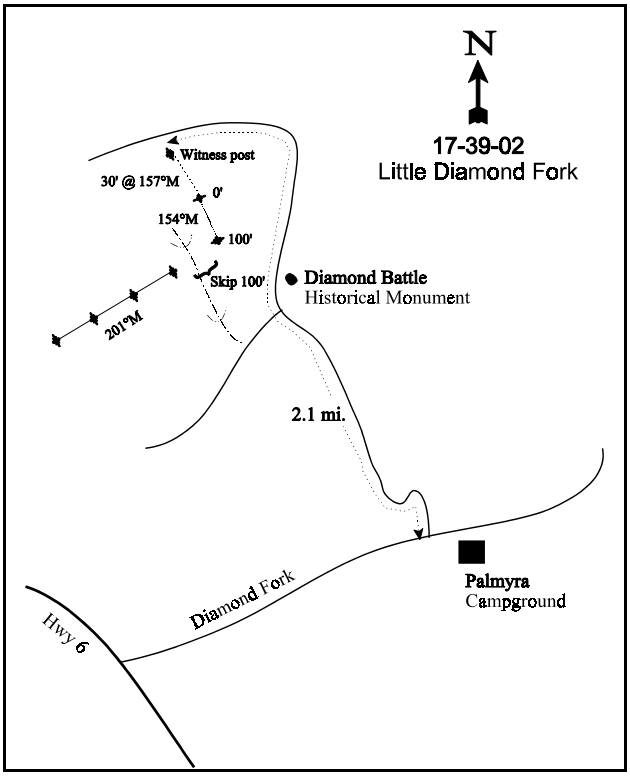
Compass bearing: frequency baseline 154 degrees magnetic (line 2-4 @ 201°M).

Frequency belt placement: line 1 (11 & 95 ft), line 2 (34 ft), line 3 (59 ft), line 4 (71 ft).

LOCATION DESCRIPTION

From the intersection of Highway 6 and Diamond Fork Canyon proceed northeasterly up Diamond Fork to Palmyra Campground. From Palmyra Campground take the road to the northwest 2.10 miles up Little Diamond Creek to a distinct sagebrush-grass plateau, and a witness post. From the witness post road, walk 30 feet at 157 degrees magnetic to the 0-foot baseline stake. The study is marked by green steel "T" fenceposts approximately 12 to 18 inches in height. A red browse tag, number 3923, is attached to the 0-foot baseline stake.




Map Name: Billies Mountain

Diagrammatic Sketch

Township 9S , Range 4E , Section 26

GPS: NAD 27, UTM 12S 4437507 N 461579 E

## DISCUSSION

### Little Diamond Fork - Trend Study No. 17-39

This study samples a broad mountain big sagebrush-grass swale located approximately one-half mile north of the "Diamond Battle Historical Monument" in Little Diamond Creek drainage. Aspect is to the south with a slope of 5-10% and an elevation of 5,850 feet. This area is considered important deer and elk winter range. This was part of the Forest Service's 1,500 acre Lower Diamond Revegetation Project. Oak and sagebrush on the study site was chained, then the area was aerially seeded in 1969. The seed mixture included western wheatgrass, smooth brome, intermediate wheatgrass, and orchard grass. There are some differences in grass identification between readings, due in large part to heavy utilization by cattle making identification difficult. When the study was established in 1983, the principal forage users on the area were domestic cattle, which were on the site in late June and early July, that were heavily utilizing the grasses. Some deer and elk pellet groups were present with little utilization visible in 1997. Data from a pellet group transect read on site in 2002 estimated 29 deer and 16 elk days use/acre (73 ddu/ha and 40 edu/ha). Most of the deer and elk pellet groups appeared to be from winter use. There was also abundant cattle pats from the summer of 2001, estimated at 41 cow days use/acre (100 cdu/ha). No livestock were seen on site in early July of 2002, but cattle may graze the area later in the summer.

Soil textural analysis indicates a sandy clay loam with a moderately acidic soil reaction (pH of 5.9). The effective rooting depth was estimated at more than 18 inches in 1997, with an average temperature of 51° F at an average depth of 18 inches. An ephemeral channel runs through the middle of the valley cutting a 10-15 foot deep gully through the sagebrush flat. There is no accelerated erosion apparent. Nearby gullies are healing with vegetation in their bottoms. Heavy grazing, trampling damage, and the presence of numerous roads and ORV trails in the area are the principal disturbances and the most obvious point erosion sources.

Mountain big sagebrush is the key preferred browse species. Density for sagebrush was estimated at 1,200 plants/acre in 1997 with 43% classified as decadent. Density increased slightly to 1,520 plants/acre in 2002 and decadence decreased to 16%. Utilization has been light to moderate during most readings with more light use reported in 1997. Vigor has been generally good, but 25% of the population displayed poor vigor in 1997 and a large number of dead plants were sampled. It was reported in 1997 that the death of the sagebrush did not appear to be from livestock or big game over utilization, but rather from rodent damage. The ground below many of the shrubs appeared disturbed by rodents. Broom snakeweed density is highly variable over all years with no recognized utilization and good vigor. Other species include rabbitbrush, prickly pear cactus, and Wood's rose.

Grass composition continues to be dominated by bulbous bluegrass, a cool season increaser with fair forage value for a short time in spring. However, it is nearly worthless as forage by mid-summer. Western wheatgrass is also an important grass which can be found in scattered patches throughout the area. As a group, grasses provide a vigorous ground cover that offers intense competition to shrub seedling establishment. The nested frequencies of smooth brome and bulbous bluegrass have increased with each reading since 1989. The principal species of forbs are increasers such as Pacific aster, spreading fleabane, and silky lupine. These have fair forage value, yet are indicative of the heavy grazing intensity by cattle.

#### 1983 APPARENT TREND ASSESSMENT

The area currently has relatively stable soil, although it is susceptible to gully erosion. Careful management of livestock grazing as well as gully, road, and ORV trail stabilization will be necessary to help preserve the site. Vegetative trend is not immediately apparent from the data. However, our impression is that mountain big sagebrush is slowly increasing and broom snakeweed is increasing rapidly. Grass cover is uniform and competitive, yet subject to heavy livestock use. It may become less important if the apparent browse trend continues.

1989 TREND ASSESSMENT

Ground cover estimations show a significant increase in the percent vegetative basal cover since 1983, from 3% to 16%. However, a decline in litter cover from 83% to 67% resulted in no change in total protective ground cover. Soil trend remains stable. The thick grass understory, which tillers aggressively under the heavy grazing pressure, offers harsh competition to the sagebrush seedlings. Broom snakeweed has increased since 1983, but the population now has a more stable age class structure. There have been only small changes since the 1983 reading. Density of sagebrush has increased 29%, use is light to moderate and vigor normal. On the down side, the number of decadent plants has increased from 20% to 57%. Trend for browse is considered stable. Overall big game use of the site is light, with some deer use in summer in addition to winter. The large gully through the study site is partially vegetated. Trend for the herbaceous understory is stable. Sum of nested frequency for perennial grasses increased slightly with the frequency of perennial forbs declining slightly.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - stable (3)

1997 TREND ASSESSMENT

Percent bare ground has declined since 1989 with adequate vegetative and litter cover to guard against significant erosion. Soil trend is up slightly. Browse trend is stable. Mountain big sagebrush density has increased slightly and the decadency rate has declined, but there are a large number of dead plants that were inventoried (660 plants/acre). More seedling and young plants were encountered this year than anytime in the past. The broom snakeweed density is constantly changing and the height and crown of this species is similar over all years. The herbaceous understory is stable with bulbous bluegrass still dominant. Grass sum of nested frequency has declined since 1989, although it is very similar to that of 1983. Sum of nested frequency for perennial forbs has increased.

TREND ASSESSMENT
soil - slightly up (4)
browse - stable (3)
herbaceous understory - stable (3)

2002 TREND ASSESSMENT

Trend for soil is stable with abundant protective ground cover and minimal exposed bare ground. Trend for the key browse species, mountain big sagebrush, is stable. Density remains similar to 1997 estimates, while utilization remains mostly light. Average vigor has improved and the number of decadent plants has declined from 43% to 16%. Annual leader growth of sagebrush is good averaging nearly 2½ inches. Seed production is also good. Many sagebrush are covered with ants and aphids but still have normal vigor. The abundant broom snakeweed has remained stable with a mostly mature population. Trend for the herbaceous understory is stable. Sum of nested frequency for perennial grasses has increased slightly while frequency of perennial forbs has declined. Bulbous bluegrass totally dominates the herbaceous understory by providing 71% of the total grass cover or 52% of the total herbaceous cover. Smooth brome has increased significantly in nested frequency and is currently the second most abundant grass. The forb component is dominated by low growing Pacific aster which provides 62% of the total forb cover. The only other common forb species are lupine and yellow salsify. Spreading fleabane, which was abundant in 1997, has declined significantly in nested frequency. It was sampled in 60 quadrats in 1997 and only 1 in 2002.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - stable (3)

HERBACEOUS TRENDS --
Herd unit 17 , Study no: 39

| Type | Species | Nested Frequency | | | | Quadrat Frequency | | | | Average Cover % | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | '83 | '89 | '97 | '02 | '83 | '89 | '97 | '02 | '97 | '02 |
| G | Agropyron intermedium | $_{a}$- | $_{c}$267 | $_{b}$57 | $_{b}$64 | - | 89 | 17 | 25 | 2.35 | 4.18 |
| G | Agropyron spp. | - | - | 7 | - | - | - | 2 | - | .41 | - |
| G | Agropyron smithii | $_{c}$227 | $_{a}$- | $_{b}$105 | $_{b}$99 | 87 | - | 36 | 42 | .89 | 1.46 |
| G | Bromus inermis | $_{a}$3 | $_{a}$13 | $_{b}$89 | $_{c}$127 | 1 | 5 | 30 | 44 | 5.55 | 8.04 |
| G | Poa bulbosa | $_{c}$364 | $_{a}$240 | $_{b}$321 | $_{bc}$351 | 97 | 84 | 91 | 98 | 28.03 | 34.79 |
| G | Poa fendleriana | 2 | 7 | 2 | 8 | 1 | 2 | 1 | 3 | .00 | .01 |
| G | Poa pratensis | $_{b}$49 | $_{ab}$25 | $_{b}$58 | $_{a}$15 | 18 | 8 | 20 | 6 | .95 | .22 |
| G | Poa secunda | $_{a}$- | $_{c}$189 | $_{b}$12 | $_{b}$25 | - | 55 | 6 | 11 | .47 | .30 |
| G | Stipa lettermani | - | 10 | - | - | - | 4 | - | - | - | - |
| Total for Annual Grasses | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total for Perennial Grasses | | 645 | 751 | 651 | 689 | 204 | 247 | 203 | 229 | 38.69 | 49.03 |
| Total for Grasses | | 645 | 751 | 651 | 689 | 204 | 247 | 203 | 229 | 38.69 | 49.03 |
| F | Agoseris grandiflora | $_{a}$8 | $_{a}$3 | $_{b}$23 | $_{b}$22 | 3 | 1 | 10 | 12 | .24 | .11 |
| F | Antennaria rosea | - | 4 | - | - | - | 2 | - | - | - | - |
| F | Arabis spp. | - | 1 | 3 | - | - | 1 | 1 | - | .03 | - |
| F | Artemisia ludoviciana | - | - | 3 | 8 | - | - | 1 | 3 | .85 | .33 |
| F | Aster chilensis | 185 | 198 | 165 | 160 | 58 | 66 | 52 | 50 | 9.25 | 10.82 |
| F | Astragalus convallarius | $_{a}$9 | $_{a}$6 | $_{a}$15 | $_{b}$37 | 4 | 2 | 7 | 16 | .75 | .60 |
| F | Astragalus spp. | - | - | 1 | 2 | - | - | 1 | 1 | .00 | .03 |
| F | Brodiaea douglasii | 2 | - | - | - | 1 | - | - | - | - | - |
| F | Carduus nutans (a) | - | - | - | 5 | - | - | - | 2 | - | .38 |
| F | Cirsium undulatum | $_{a}$10 | $_{a}$4 | $_{b}$32 | $_{a}$12 | 4 | 2 | 16 | 5 | .93 | .26 |
| F | Collomia linearis (a) | - | - | 10 | 13 | - | - | 5 | 6 | .02 | .03 |
| F | Collinsia parviflora (a) | - | - | 15 | 5 | - | - | 5 | 2 | .02 | .01 |
| F | Crepis acuminata | - | - | - | 1 | - | - | - | 1 | - | .00 |
| F | Cynoglossum officinale | $_{a}$- | $_{a}$6 | $_{b}$24 | $_{a}$- | - | 4 | 11 | - | .27 | - |
| F | Descurainia pinnata (a) | - | - | 3 | - | - | - | 1 | - | .00 | - |
| F | Epilobium brachycarpum (a) | - | - | 3 | 14 | - | - | 2 | 7 | .01 | .03 |
| F | Erodium cicutarium (a) | - | - | 1 | - | - | - | 1 | - | .00 | - |
| F | Erigeron divergens | $_{b}$49 | $_{b}$44 | $_{c}$143 | $_{a}$1 | 24 | 23 | 60 | 1 | 2.08 | .03 |
| F | Eriogonum racemosum | 7 | 4 | 3 | - | 4 | 2 | 1 | - | .00 | - |
| F | Eriogonum umbellatum | - | - | 4 | 3 | - | - | 1 | 1 | .03 | .03 |
| F | Galium aparine (a) | - | - | 2 | - | - | - | 1 | - | .00 | - |
| F | Gilia spp. (a) | - | - | - | 2 | - | - | - | 1 | - | .00 |
| F | Holosteum umbellatum (a) | - | - | - | 3 | - | - | - | 1 | - | .00 |
| F | Lactuca serriola | - | - | 7 | 3 | - | - | 4 | 1 | .07 | .00 |
| F | Lupinus argenteus | $_{b}$100 | $_{a}$42 | $_{b}$115 | $_{a}$61 | 48 | 22 | 51 | 25 | 5.40 | 3.80 |

| Type | Species | Nested Frequency | | | | Quadrat Frequency | | | | Average Cover % | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | '83 | '89 | '97 | '02 | '83 | '89 | '97 | '02 | '97 | '02 |
| F | Medicago sativa | - | - | 3 | - | - | - | 1 | - | .00 | - |
| F | Microsteris gracilis (a) | - | - | - | 1 | - | - | - | 1 | - | .00 |
| F | Oenothera spp. | $_{a}$- | $_{a}$- | $_{b}$16 | $_{b}$20 | - | - | 7 | 7 | .11 | .13 |
| F | Polygonum douglasii (a) | $_{a}$- | $_{a}$- | $_{b}$42 | $_{a}$5 | - | - | 19 | 2 | .12 | .01 |
| F | Taraxacum officinale | $_{a}$- | $_{a}$- | $_{c}$27 | $_{b}$8 | - | - | 10 | 5 | .27 | .05 |
| F | Tragopogon dubius | $_{ab}$62 | $_{a}$41 | $_{b}$78 | $_{ab}$60 | 27 | 18 | 34 | 30 | .71 | .51 |
| F | Unknown forb-annual (a) | - | - | 1 | - | - | - | 1 | - | .00 | - |
| F | Unknown forb-perennial | - | 2 | - | - | - | 1 | - | - | - | - |
| F | Verbascum thapsus | 4 | 2 | - | 3 | 2 | 1 | - | 1 | - | .03 |
| F | Vicia americana | $_{c}$50 | $_{a}$- | $_{b}$18 | $_{b}$23 | 23 | - | 7 | 10 | .16 | .32 |
| F | Zigadenus paniculatus | 3 | 1 | 5 | - | 1 | 1 | 2 | - | .03 | - |
| Total for Annual Forbs | | 0 | 0 | 77 | 48 | 0 | 0 | 35 | 22 | 0.20 | 0.48 |
| Total for Perennial Forbs | | 489 | 358 | 685 | 424 | 199 | 146 | 277 | 169 | 21.23 | 17.07 |
| Total for Forbs | | 489 | 358 | 762 | 472 | 199 | 146 | 312 | 191 | 21.44 | 17.56 |

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Herd unit 17 , Study no: 39

| Type | Species | Strip Frequency | | Average Cover % | |
|---|---|---|---|---|---|
| | | '97 | '02 | '97 | '02 |
| B | Amelanchier alnifolia | 0 | 1 | - | - |
| B | Artemisia tridentata vaseyana | 48 | 45 | 6.21 | 8.78 |
| B | Chrysothamnus nauseosus albicaulis | 1 | 1 | - | .03 |
| B | Chrysothamnus viscidiflorus viscidiflorus | 2 | 2 | .00 | - |
| B | Gutierrezia sarothrae | 15 | 19 | .96 | .49 |
| B | Opuntia spp. | 3 | 4 | - | .16 |
| B | Rosa woodsii | 4 | 4 | .15 | .44 |
| Total for Browse | | 73 | 76 | 7.33 | 9.90 |

CANOPY COVER -- LINE INTERCEPT
Herd unit 17 , Study no: 39

| Species | Percent Cover | |
|---|---|---|
| | '97 | '02 |
| Artemisia tridentata vaseyana | - | 8.17 |
| Gutierrezia sarothrae | - | .92 |
| Opuntia spp. | - | .08 |

Key Browse Annual Leader Growth
Herd unit 17 , Study no: 39

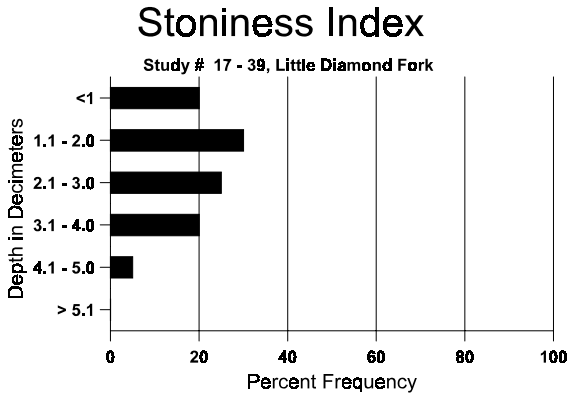
| Species | Average leader growth (in) '02 |
|---|---|
| Artemisia tridentata vaseyana | 2.5 |

BASIC COVER --
Herd unit 17 , Study no: 39

| Cover Type | Nested Frequency '97 | '02 | Average Cover % '83 | '89 | '97 | '02 |
|---|---|---|---|---|---|---|
| Vegetation | 377 | 383 | 2.50 | 16.00 | 56.77 | 69.70 |
| Rock | 25 | 59 | 0 | .25 | .25 | .50 |
| Pavement | 150 | 184 | 0 | .75 | .84 | 1.20 |
| Litter | 395 | 366 | 82.50 | 66.50 | 36.25 | 37.31 |
| Cryptogams | 43 | 13 | .25 | .25 | .78 | .22 |
| Bare Ground | 267 | 263 | 14.75 | 16.25 | 8.65 | 11.30 |

SOIL ANALYSIS DATA --
Herd Unit 17, Study no: 39, Little Diamond Fork

| Effective rooting depth (in) | Temp °F (depth) | pH | %sand | %silt | %clay | %0M | PPM P | PPM K | dS/m |
|---|---|---|---|---|---|---|---|---|---|
| 14.8 | 51.0 (16.2) | 5.9 | 55.4 | 24.7 | 19.8 | 2.4 | 25.7 | 579.2 | .4 |




PELLET GROUP FREQUENCY --
Herd unit 17 , Study no: 39

| Type | Quadrat Frequency '97 | '02 | Pellet Transect Pellet Groups per Acre ⁄02 | Days Use per Acre (ha) ⁄02 |
|---|---|---|---|---|
| Sheep | - | 1 | - | - |
| Elk | 3 | - | 209 | 16 (40) |
| Deer | 3 | 12 | 383 | 29 (73) |
| Cattle | 2 | 14 | 487 | 41 (100) |

BROWSE CHARACTERISTICS --
Herd unit 17 , Study no: 39

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Amelanchier alnifolia | | | | | | | | | | | | | | | | | | |
| M | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 22 | 27 | 0 |
| | 02 | - | 1 | - | - | - | - | - | - | - | 1 | - | - | - | 20 | 24 | 23 | 1 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor |
|---|---|---|---|
| '83 | 00% | 00% | 00% |
| '89 | 00% | 00% | 00% |
| '97 | 00% | 00% | 00% |
| '02 | 100% | 00% | 00% |

%Change

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '83 | 0 | Dec: | - |
| | '89 | 0 | | - |
| | '97 | 0 | | - |
| | '02 | 20 | | - |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Artemisia tridentata vaseyana | | | | | | | | | | | | | | | | | | |
| S | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | 3 | - | - | 1 | - | - | - | - | - | 4 | - | - | - | 80 | | | 4 |
| | 02 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| Y | 83 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 66 | | | 1 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | 9 | - | - | - | - | - | - | - | - | 9 | - | - | - | 180 | | | 9 |
| | 02 | 5 | - | - | - | - | - | - | - | - | 5 | - | - | - | 100 | | | 5 |
| M | 83 | 2 | 5 | - | - | - | - | - | - | - | 7 | - | - | - | 466 | 30 | 41 | 7 |
| | 89 | 4 | 2 | - | - | - | - | - | - | - | 6 | - | - | - | 400 | 22 | 25 | 6 |
| | 97 | 22 | 3 | - | - | - | - | - | - | - | 25 | - | - | - | 500 | 25 | 37 | 25 |
| | 02 | 49 | 10 | - | - | - | - | - | - | - | 58 | 1 | - | - | 1180 | 22 | 32 | 59 |
| D | 83 | 1 | 1 | - | - | - | - | - | - | - | 2 | - | - | - | 133 | | | 2 |
| | 89 | 7 | 1 | - | - | - | - | - | - | - | 7 | 1 | - | - | 533 | | | 8 |
| | 97 | 19 | 1 | - | 6 | - | - | - | - | - | 11 | - | - | 15 | 520 | | | 26 |
| | 02 | 8 | 4 | - | - | - | - | - | - | - | 10 | - | - | 2 | 240 | | | 12 |
| X | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 660 | | | 33 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 400 | | | 20 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 60% | 00% | 00% | +29% |
| '89 | 21% | 00% | 00% | +22% |
| '97 | 07% | 00% | 25% | +21% |
| '02 | 18% | 00% | 03% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '83 | 665 | Dec: | 20% |
| | '89 | 933 | | 57% |
| | '97 | 1200 | | 43% |
| | '02 | 1520 | | 16% |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chrysothamnus nauseosus albicaulis | | | | | | | | | | | | | | | | | | |
| M | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 97 | - | 1 | - | - | - | - | - | - | - | 1 | - | - | - | 20 | 42 | 59 | 1 |
| | 02 | - | - | 1 | - | - | - | - | - | - | 1 | - | - | - | 20 | 26 | 36 | 1 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 00% | 00% | 00% | |
| '89 | 00% | 00% | 00% | |
| '97 | 100% | 00% | 00% | + 0% |
| '02 | 00% | 100% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '83 | 0 | Dec: | - |
| | '89 | 0 | | - |
| | '97 | 20 | | - |
| | '02 | 20 | | - |

| Chrysothamnus viscidiflorus viscidiflorus | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 97 | 3 | - | - | - | - | - | - | - | - | 3 | - | - | - | 60 | 12 | 14 | 3 |
| | 02 | 3 | - | - | - | - | - | - | - | - | 3 | - | - | - | 60 | 15 | 26 | 3 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 00% | 00% | 00% | |
| '89 | 00% | 00% | 00% | |
| '97 | 00% | 00% | 00% | + 0% |
| '02 | 00% | 00% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '83 | 0 | Dec: | - |
| | '89 | 0 | | - |
| | '97 | 60 | | - |
| | '02 | 60 | | - |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gutierrezia sarothrae | | | | | | | | | | | | | | | | | | |
| S | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | 9 | - | - | - | - | - | - | - | - | 9 | - | - | - | 180 | | | 9 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| Y | 83 | 17 | - | - | - | - | - | - | - | - | 17 | - | - | - | 1133 | | | 17 |
| | 89 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 133 | | | 2 |
| | 97 | 25 | - | - | - | - | - | - | - | - | 25 | - | - | - | 500 | | | 25 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| M | 83 | 4 | - | - | - | - | - | - | - | - | 4 | - | - | - | 266 | 11 | 13 | 4 |
| | 89 | 39 | - | - | - | - | - | - | - | - | 39 | - | - | - | 2600 | 10 | 7 | 39 |
| | 97 | 54 | - | - | - | - | - | - | - | - | 54 | - | - | - | 1080 | 10 | 11 | 54 |
| | 02 | 90 | - | - | - | - | - | - | - | - | 90 | - | - | - | 1800 | 8 | 11 | 90 |
| D | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | 5 | - | - | - | - | - | - | - | - | 5 | - | - | - | 333 | | | 5 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 02 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 00% | 00% | 00% | +54% |
| '89 | 00% | 00% | 00% | -48% |
| '97 | 00% | 00% | 00% | +13% |
| '02 | 00% | 00% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '83 | 1399 | Dec: | 0% |
| | '89 | 3066 | | 11% |
| | '97 | 1580 | | 0% |
| | '02 | 1820 | | 1% |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Opuntia spp. | | | | | | | | | | | | | | | | | | |
| S | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | 3 | - | - | - | - | - | - | - | - | 3 | - | - | - | 200 | | | 3 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| Y | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | 6 | - | - | - | - | - | - | - | - | 6 | - | - | - | 400 | | | 6 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| M | 83 | 7 | - | - | - | - | - | - | - | - | 7 | - | - | - | 466 | 7 | 16 | 7 |
| | 89 | 3 | - | - | - | - | - | - | - | - | 3 | - | - | - | 200 | 7 | 23 | 3 |
| | 97 | 22 | - | - | - | - | - | - | - | - | 22 | - | - | - | 440 | 7 | 13 | 22 |
| | 02 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | 6 | 19 | 2 |
| D | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 02 | 13 | - | - | - | - | - | - | - | - | 1 | - | - | 12 | 260 | | | 13 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 00% | 00% | 00% | +22% |
| '89 | 00% | 00% | 00% | -27% |
| '97 | 00% | 00% | 00% | -32% |
| '02 | 00% | 00% | 80% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| '83 | 466 | Dec: | | 0% |
| '89 | 600 | | | 0% |
| '97 | 440 | | | 0% |
| '02 | 300 | | | 87% |

Quercus gambelii

| M | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 37 | 14 | 0 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 00% | 00% | 00% | |
| '89 | 00% | 00% | 00% | |
| '97 | 00% | 00% | 00% | |
| '02 | 00% | 00% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | |
|---|---|---|---|
| '83 | 0 | Dec: | - |
| '89 | 0 | | - |
| '97 | 0 | | - |
| '02 | 0 | | - |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rosa woodsii | | | | | | | | | | | | | | | | | | |
| S | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| Y | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | 13 | - | - | - | - | - | - | - | - | 13 | - | - | - | 260 | | | 13 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| M | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 97 | - | - | - | 1 | - | - | - | - | - | 1 | - | - | - | 20 | 23 | 21 | 1 |
| | 02 | 14 | - | - | - | - | - | - | - | - | 14 | - | - | - | 280 | 9 | 14 | 14 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 00% | 00% | 00% | |
| '89 | 00% | 00% | 00% | |
| '97 | 00% | 00% | 00% | + 0% |
| '02 | 00% | 00% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '83 | 0 | Dec: | - |
| | '89 | 0 | | - |
| | '97 | 280 | | - |
| | '02 | 280 | | - |

| Symphoricarpos oreophilus | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 18 | 19 | 0 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 00% | 00% | 00% | |
| '89 | 00% | 00% | 00% | |
| '97 | 00% | 00% | 00% | |
| '02 | 00% | 00% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '83 | 0 | Dec: | - |
| | '89 | 0 | | - |
| | '97 | 0 | | - |
| | '02 | 0 | | - |